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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/664,976	09/18/2000	Joseph M. Bennett	AF Inv D00378	4606

7590

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EXAMINER

ROCHE, LEANNA M

ART UNIT

PAPER NUMBER

1771

3

DATE MAILED: 08/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/664,976

Applicant(s)

BENNETT, JOSEPH M.

Examiner

Leanna Roche

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 1 and 5 claim "micro-cavities being sized to minimize seepage of the [flammable] liquid into said micro-cavities because of the surface tension of the liquid". This is indefinite because there are numerous flammable liquids each having specific individual surface tension values. Because no specific liquid and no specific surface tension requirement is identified, it is impossible to determine the possible values for the size of the micro-cavities.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Wakeman et al.

Wakeman is directed to a multi-hole film combustor liner for gas turbine engines. The liner of Wakeman is comprised of a single wall of sheet metal having many downstream angled small film cooling holes in a continuous pattern in the film. The holes may have a diameter of 20 mils. The combustor liner reads on a structural member for enclosing hot operating machinery. The holes of Wakeman read on the plurality of micro-cavities on the outer surface of the structural member. As seen in Figure 5, the holes of Wakeman have a circular shape and the centerline of the holes of Wakeman is non-perpendicular to the surface of the combustor liner.

The recitation "for mitigating ignition of a flammable liquid that comes into contact with said structural member" is directed to the intended use of the claimed invention. For the purposes of examination, the intended use recitation must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In the present case, because Applicant has not clearly and definitely set forth the limitations for the size of the micro-cavities of the structural element (see 35 USC 112, second paragraph rejection set forth above in Paragraphs 1-3), and Applicant's specification states that "acceptable cavity...sizes in contemplation of the invention fall in the range of up to a few millimeters in width or diameter and depth for most flammable liquids..." (Page 7, lines 2-5), it is held that the holes of Wakeman would inherently be capable of minimizing the seepage

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of at least one flammable liquid into the holes because of the surface tension of that liquid.

6. Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Gupta et al. (USPN 5558922).

Gupta is directed to components for gas turbine engines comprised of a thermal barrier coating having grooves for use in hostile thermal environments. The barrier coating of Gupta is comprised of a bond layer overlaying a substrate and a ceramic layer on the bond layer. The ceramic layer is characterized by grooves that are arranged to define a grid in the surface of the ceramic layer, the grooves having substantially uniform widths of about 100 to about 500 micrometers. The components for a gas turbine engine read on a structural element for enclosing or supporting hot operating machinery. The ceramic layer of Gupta reads on Applicant's "means defining a plurality of micro-cavities on the outer surface of said structural member" and Applicant's "porous sintered coating on said structural member defining a plurality of micro-cavities in the surface of said coating". The grooves of Gupta read on Applicant's micro-cavities in the form of grooves defined in the surface of the structural member.

The recitation "for mitigating ignition of a flammable liquid that comes into contact with said structural member" is directed to the intended use of the claimed invention. For the purposes of examination, the intended use recitation must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of

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performing the intended use, then it meets the claim. In the present case, because Applicant has not clearly and definitely set forth the limitations for the size of the micro-cavities of the structural element (see 35 USC 112, second paragraph rejection set forth above in Paragraphs 1-3), and Applicant's specification states that "acceptable cavity...sizes in contemplation of the invention fall in the range of up to a few millimeters in width or diameter and depth for most flammable liquids..." (Page 7, lines 2-5), it is held that the grooves of Gupta would inherently be capable of minimizing the seepage of at least one flammable liquid into the grooves because of the surface tension of that liquid.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (USPN 4076100).

Davis is directed to an oil impervious acoustical board. The board may be used as building material in engine rooms. The board is comprised of a sheet of fiberglass cloth having numerous perforations on its surface, a thin impervious film layer and a melamine material with a multiplicity of grooves. The acoustical board of Davis reads

on a structural element for enclosing hot operating machinery. The numerous perforations on the surface of the fiberglass cloth read on Applicant's plurality of micro-cavities on the outer surface of the structural member. Figure 3 shows that the perforations of Davis are of circular shape.

While Davis discloses the desire to prevent oil fumes from penetrating into the board because "oil, or the like, impregnated in such a board will of course give rise to a severe combustion hazard" (Column 4, lines 46-56), Davis does not specifically disclose that their perforations are specifically sized to minimize seepage of liquid into the perforations. However, it would have been obvious to the skilled artisan at the time this invention was made to size the perforations to **minimize** seepage of the flammable liquid, oil, into the board, motivated by the desire to prevent a severe combustion hazard, and to prevent clogging of the perforations resulting in decreased acoustical properties.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 3584972, USPN 5297765, USPN 5465572 and USPN 5721402 all disclose engine elements comprised of a material having a microporous outer layer.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leanna Roche whose telephone number is 703-308-

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6549. The examiner can normally be reached on Monday through Friday from 8:30 am to 6:00 pm (with alternate Mondays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



lmr

August 20, 2002



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